

World Heritage Sites

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TIKAL NATIONAL PARK GUATEMALA

The magnificent Maya ruins of Tikal are a national symbol sited in one of the two most important reserves in the country for both archaeology and biodiversity. They are one of the major sites of Mayan civilization, inhabited from the 6th century B.C. to the 10th century A.D. The ceremonial centre contains superb temples, palaces and public squares. Remains of Mayan buildings are scattered throughout the surrounding countryside. They are surrounded by the largest and northernmost tropical rain forest in Central America, a jungle rich in rivers, lakes, swamps and flooding savannas with a wide range of unspoilt natural habitats and more than 300 species of useful trees.

COUNTRY

Guatemala

NAME

Tikal National Park

MIXED NATURAL & CULTURAL WORLD HERITAGE SITE

1979: Inscribed on the World Heritage List under Cultural Criteria i, iii & iv + Natural Criterion ix & x.

STATEMENT OF OUTSTANDING UNIVERSAL VALUE [pending]

INTERNATIONAL DESIGNATION

1990: Part of the Maya Biosphere Reserve of the UNESCO Man and Biosphere Programme (2,112,940ha).

IUCN MANAGEMENT CATEGORY

Ia Strict Nature Reserve

BIOGEOGRAPHICAL PROVINCE

Campechean (8.01.01)

GEOGRAPHICAL LOCATION

Located in northern Guatemala 25km northeast of the town of Flores in Petén Department which adjoins Mexico and Belize. The area is a square block in the southeast of Maya Biosphere Reserve, bordered southwest by San Miguel La Palotada Biotope, on the east by the Yaxha, Nakum and Naranjo National Monuments, by the Maya Reserve multi-use zone in the north and by its buffer zone on the south. Located at 17° 23' N by 89° 34' W.

DATES AND HISTORY OF ESTABLISHMENT

1931: Declared a National Monument;

1955: Gazetted a National Park; 1957: regulations and borders defined;

1990: The Maya UNESCO Biosphere Reserve established surrounding the Park.

LAND TENURE

State, in the department of El Peten. Administered by the Institute of Anthropology and History; officially also by the National Council of Protected Areas (CONAP), both under the Directorate General of Cultural and Natural Heritage within the Ministry of Culture & Sports.

AREA

57,582 ha. The contiguous San Miguel La Palotada Biotope (El Zotz) is 49,500ha, and the Yaxha-Nakum-Naranjo Monument is 37,140ha. The vast Biosphere Reserve covers 19.4% of Guatemala.

ALTITUDE

185m to 400m.

PHYSICAL FEATURES

The landscape is rolling, with the low hills of the Yucatan shelf in the northwest from which the rounded Lacandon highlands run southeast across the centre of the Park amongst lagoons and alluvial plains. The bedrock is of limestone and dolomites showing the characteristics of karst formations with broken relief. The soils of El Petén form a sedimentary basin with deposits from the Mesozoic and Tertiary periods. In general soils are clayey and slightly permeable, with internal drainage, and are easily compacted. In the Lacandon area, soils are poor and there are abrupt cliffs. In the Tikal, Uaxactun and Dos Lagunas areas, the topography is undulating and soils are well drained (Lehnhoff, 1990; Lehnhoff & Perez, 1990). Laguna del Tigre and Laguna de Yaxha are the main lagoons found in the wetland area, where there are a large number of *aguadas* or superficial swamps. The various rivers in the Park are part of the drainage basin of the Usumacinta River which flows into the Gulf of Mexico. This is one of the most extensive wetland systems in central America. The underwater potential has not been evaluated, but geological faults probably canalise water in a disorganised fashion in limestone subsoils such as this (Lehnhoff & Perez, 1990; Lehnhoff, 1990).

CLIMATE

The region is warm and humid, with average temperatures between 17° and 25°C. The average relative humidity is 85% and the mean annual precipitation is 1,450mm (E. Solórzano, *in litt.*, 2002). The rainy season lasts about 150 days from May to December. During this season the winds are from the north, north-east, south and south-east; during the dryer season of April to May, they blow from north to south.

VEGETATION

Tikal National Park is in the Humid Subtropical Forest life zone of Holdridge and its vegetation is characteristic of the eastern Maya Reserve. Within it there are five sub-zones: high to medium broadleaf forest on the plains (55.2%), high to medium broadleaf forest in the mountains (32.3%), periodically flooded lowland forest below 300m (9.9%), riparian forest (1.2% and wetlands (0.02%); rivers (1.11%) and other (0.25%) (Solórzano, 2002).

There are over 200 species of trees. This rich vegetation includes a) high altitude forest with chicle *Manilkara zapota*, bread-nut tree *Brosimum alicastrum*, ceiba *Ceiba* sp., West Indian mahogany *Swietenia macrophylla* (VU), Spanish cedar *Cedrela odorata* (VU), *Clusia* sp. (*matapalo*), bayleaf palm *Sabal morrisiana* and silver rootspine palm *Cryosophila argentea*, b) *tinto* lowland forest in the southwest on heavy floodplain soils among marshes and savanna, with bloodwood *Hematoxylum campechianum*, c) savanna species such as nance *Byrsonima crassifolia*, and d) wetlands with water hyacinth *Eichhornia crassipes*, cat-tail *Typha latifolia* (Lehnhoff, 1990). Other common tree species include fiddlewood *Vitex guameri* (EN), cedar *Cedrela angustifolia*, *santamaria*, *Calophyllum brasiliense*, thatch palm *Sabal mayarum*, gumbo-limbo, *Bursera simaruba*, copal, *Protium copal*, sweet acacia *Acacia farnesiana*, *Aspidosperma megalocarpon*, and *Guarea exelsa*. Palms, epiphytes, orchids and bromeliads are abundant. The botanist L. Lundell identified over 2,000 plant species in the Park area. The local people use many forest species such as chicle *Manilkara achras*, allspice *Pimenta dioica*, Spanish cedar, Mexican mahogany *Swietenia humilis* (VU), breadnut *Brosimum alicastrum* and leaves and flowers from *xaté* palms *Chamaedorea* spp., *Aechmea magdalenae* (*pita floja*) and *Araceae* spp. (ParksWatch, 2003; Lehnhoff (1990).

FAUNA

Over 100 species of mammal are found, including 60 species of bat, mantled howler monkey *Alouatta palliata*, Yucatan spider monkey *Ateles geoffroyi yucatanensis* (EN), pale-throated sloth *Bradypus*

tridactylus, lesser anteater *Tamandua tetradactyla*, pygmy anteater *Cyclopes didactylus*, nine-banded armadillo *Dasybus novemcinctus*, Yucatan squirrel *Sciurus yucatanensis*, hispid pocket gopher *Orthogeomys hispidus*, raccoon *Procyon* sp., white-nosed coati *Nasua narica*, kinkajou *Potos flavus*, tayra, *Eira barbara*, spotted paca, *Cuniculus paca*, long-tailed weasel *Mustela frenata*, hooded skunk *Mephitis macroura*, long-tailed otter *Lontra longicaudis annectens*, puma *Puma concolor*, jaguarundi *Puma yagouaroundi*, jaguar *Panthera onca*, Baird's tapir *Tapirus bairdii* (EN), which is limited by water availability, collared peccary *Tayassu tajacu* and white-lipped peccary *T. albirostris*, white-tailed deer *Odocoileus virginianus* and red brocket deer *Mazama americana sarterii*.

The avifauna comprises 352 species, with 63 of the 74 families in Guatemala. It includes ocellated turkey *Meleagris ocellata*, king vulture *Sarcorhamphus papa*, great curassow *Crax rubra* (VU) and crested guan *Penelope purpurascens*. Among its 30 species of raptors are Guiana crested eagle *Morphnus guianensis*, crested eagle *Spizaetus ornatus*, orange-breasted falcon *Falco diereuleucus* and hook-billed kite *Chondrohierax uncinatus* (ParkWatch, 2003; Solórzano, *in litt.*, 2002).

The 105 species of reptiles and 25 amphibians include nine families of amphibians and six genera of turtles. Among these are Morelet's crocodile *Crocodylus moreletii*, the Central American river turtle *Dermatemys mawii* (CR), yellow-bellied slider turtle *Trachemys scripta*, narrow-bridged musk turtle *Claudius angustatus*, coral snake *Micrurus diastema sapperi*, four species of Bothrops and two sub-species of rattlesnake *Crotalus*. Fishes include *Petenia splendida*, the cichlids *Amphilophus margaritifer* (EN), *Cichlasoma melanorum*, *C. bifasciatum*, *C. heterospilum*, *C. lentiginosum*, *C. champotonis*, *C. affine*, *C. hyorhynchum* and *C. passionis*. There is also a rich invertebrate fauna (ParksWatch, 2003; Lehnhoff, 1990).

CONSERVATION VALUE

As a nationally symbolic site Tikal has long been protected. It lies within a Conservation International-designated Conservation Hotspot, in a WWF/IUCN defined Centre of Plant Diversity and within the immense Maya UNESCO Biosphere Reserve. With Sierra de las Minas Biosphere Reserve, Maya is the most important reserve in the country for both biodiversity and archaeology. The magnificent Maya ruins are surrounded by the largest and northernmost tropical rain forest in Central America, a dense broad-leaved jungle rich in rivers, lakes, swamps and flooding savannas, a wide range of natural habitats which are still unspoilt. There are more than 300 species of trees useful to man and a considerable number of threatened and CITES-listed species (Lehnhoff & Perez, 1990). The Park lies within a Conservation International-designated Conservation Hotspot, a WWF Global 200 Eco-region, a WWF/IUCN Centre of Plant Diversity and is surrounded by a large UNESCO Biosphere Reserve.

CULTURAL HERITAGE

The main attraction of the Park is the great ruined city of the Maya Indians, begun in the 4th century BC, which shows the evolution of Mayan society from hunter-gathering to farming, with an elaborate religious, artistic and scientific culture which collapsed perhaps owing to drought, in the late 10th century. At its height from 200 to 900 AD the city supported a population of 90,000 Mayan Indians over some 2,500 square kilometres. The site was rediscovered in 1848. There are over 3,000 separate buildings dating from the period 600 BC to 900 AD, including six large step-temples, religious monuments decorated with hieroglyphic inscriptions, houses and tombs. Excavations have yielded remains of cotton, tobacco, beans, pumpkins, peppers and many fruits of PreColumbian origin. Large areas are still to be excavated.

LOCAL HUMAN POPULATION

The Petén department had a population of 65,000 in 1973 which rose above 300,400 by 2000, increasing at an annual rate of 5.5%, compared with 2.9% in the rest of the country. This population growth is high owing to government-encouraged in-migration of *ladino* colonists from areas of exhausted land, refugees from El-Salvador, and Kekchí Amerindians from the Alta Verapaz region. Small scale agriculture, artisanal fishing, forest dwelling, gathering and hunting are the main activities in the multiple use zone of the reserve, and villages and farmland surround the Park. Crops grown include maize, beans, sweet potato, citrics and squash. There is annual burning of grazing areas, either before or at the start of the rainy season, for the regeneration of pasture lands. Large scale commercial cattle production in the region is hindered by inadequate transportation links, but there is some cattle raising near Tikal (WWF & IUCN, 1997; Lehnhoff, 1990).

VISITORS AND VISITOR FACILITIES

The Park is the gateway to the heart of the Maya Biosphere Reserve. Road access is good, though 4WD vehicles are needed within the Park in the rainy season. Access is poor during the rainy season, even to 4WD vehicles. Flores International Airport is 25km away. Two hotels, four restaurants, two museums, a campsite and interpretive services are available in the core area of Tikal. The Park is estimated to be the main attraction for 15% of Guatemala's visitors and earns a high revenue from fees (WWF & IUCN, 1997). Foreigners pay three times more (\$6.50) than Guatemalans, and locals enter free. Recent visitors have numbered over 200,000 a year. The result is a mass tourism which has become destructive around the main monuments and has encouraged criminal activity (ParksWatch, 2003). To counter this, the IUCN hopes to encourage sustainable tourism.

SCIENTIFIC RESEARCH AND FACILITIES

The site was discovered to the West in the 19th century but first thoroughly investigated between 1956 and 1970 by a team from the University of Pennsylvania, and continuously thereafter by the Guatemalan government. A wide program of basic and applied research has supported site management objectives and sustainable conservation in the region. Information exists on geographic information systems, satellite imagery, aerial photography, hydrological and limnological surveys, climate, geology, hydrology, biological inventories, the uses of land, water and fauna, socioeconomic and cultural ethnobiology. These are supported by a history and bibliography of past scientific work, (G-MAJB Committee, 1990). Support for both Park and Reserve has come from the Centro Agronómico de Tropical Investigación y Enseñanza (CATIE) for the conservation and sustainable use of resources within the core area 'El Zotz' Biotope; from IUCN Yaxha for sustainable use of resources in the buffer zone and multiple use area; from AID - The Nature Conservancy for support to CONAP for basic protection and field personnel, manual and training for the guards and the Parks in Danger program; from Wildlife Conservation International to study the ecology of species in El Petén, their use and management alternatives; from the Peregrine Fund to monitor raptors in Tikal National Park; from WWF to support the management of biotopes administered by the Centro de Estudios Conservacionistas (CECON); from Conservation International for ethnobotanical studies; and from UNESCO for the Tikal World Heritage site (Lehnhoff, 1990).

Studies have been undertaken on the protection of the endangered ocellated turkey, on limnology and hydrology, pests and diseases, soils and sedimentation and the impacts of recreation and tourism. Other research has covered forestry, resource mapping, traditional land use systems and wildlife population dynamics (Lehnhoff, 1990). CATIE and IUCN are cooperating in demonstration projects in the multiple use zone east of Tikal. There is a climatological monitoring station with conference, laboratory and library facilities and a museum with over 10,000 religious and domestic artifacts. Cultural research has centred on the evolution of the Mayan culture and on social sciences; the Institute of Anthropology and History is leading archaeological research in the Reserve. Tikal is one of five key areas for pilot work carried out by *Paseo Pantera*, the Path of the Panther, a consortium of US and Central American governmental and non-governmental agencies aiming to protect biodiversity by means of a biological corridor from Guatemala through Panama (WWF & IUCN, 1997).

MANAGEMENT

Tikal National Park is the core area of the Maya Biosphere Reserve with the surrounding multiple use protected areas and a 15km-wide surrounding buffer zone. The Maya Reserve Coordinating Committee coordinates the Reserve's various administrative institutions: members of the presiding National Council of Protected Areas (CONAP), the Institute of Anthropology and History which administers Tikal, the *Centro de Estudios Conservacionistas de la Universidad de San Carlos* and the Commandants of the 23rd military zone and of the air base of Santa Elena who jointly patrol the borders of the Reserve (G-MAJB Committee, 1990). There is a high degree of cooperation between the site and the MAB Biosphere Reserve authorities, as well as between regional planning and development authorities, local communities around the Reserve, and the coordinating body for integrating scientific activities on site (Lehnhoff, 1990).

Tikal itself is divided between the well developed central core area around the much visited Mayan temples, and the surrounding protected jungle. A Master Plan for the National Park from 2003 to 2008 is being prepared with help from the Nature Conservancy. The main objectives of the Reserve are to conserve the natural environment, to provide the legal basis for resource protection and management, to conserve specific genetic resources in situ, to conduct scientific research, to promote regional planning and integrated rural development, to disseminate knowledge about conserving and managing

the reserve, to promote local participation in land use and management, and to promote environmental education and training (Lehnhoff, 1990).

A program for the prevention and control of forest fires has been initiated; also a plan for managing the central swamps; and a wildlife management plan to treat animals injured on the approach road. Activities undertaken in the core area are biological inventorying, long-term environmental monitoring, environmental education and professional training. Activities in the adjoining buffer zone are biological inventorying and collection, forestry, agriculture, fishing and environmental education. In the adjoining multiple use area the main activities include conservation management, environmental education, professional training, long-term monitoring, restoration of wetlands and terrestrial habitats, biological collecting, agriculture, forestry, fishing, resource gathering, tourist development and crafts (Lehnhoff, 1990). Education and training include extension services for local people, demonstration projects in conservation and rational resource use, graduate and postgraduate studies, professional training, workshops and staff training in protected area management. Eighty park guards have been trained. Environmental education for school children and interpretive programs for tourists have been planned (G-MAJB Committee, 1990). Since 1993, an IUCN project has been working with 26 villages in the buffer zone surrounding Tikal to help develop alternative sustainable livelihoods which will reduce the dependence of indigenous peoples on the site's forest resources (ParksWatch, 2003; UNESCO, 1993)

MANAGEMENT CONSTRAINTS

The completion of a Master Plan for the next five years, and increased local participation in the prevention of fires are essential to improving the effectiveness of the Park's protection. Conditions in the Park are relatively stable with few problems, but fire-setting, illegal resource extraction and poaching of plants and animals are easy because the Park's open boundaries are poorly guarded compared with the archaeological area. More permanent guards are needed in remote areas, especially of the south where encroachments by farmers, herdsmen and loggers is greatest and dry season fires most frequent. The annual burning of pastureland affects some nesting birds in the area, particularly the nationally endangered ocellated turkey (Lehnhoff, 1990). Other problems are the fragmentation and destruction of habitats, disturbed and declining wildlife populations, parasitism and disease, alien species, pollution, logging and illegal trading in forest products,

In the buffer zone, the destruction of habitats, hunting, trapping and residential development continue. In the multiple use area grazing, human settlement, hunting, residential and industrial development increase. Theft and vandalism of archaeological relics occurs (ParksWatch, 2003; G-MAJB Committee, 1990). Tourism is poorly managed and is degrading the most visited sites. Pressures for oil extraction in the area have been lifted but there are still threats of a through-road which would open the Reserve to more development. It is hoped that government encouragement of permanent crop-farming and conservation education may begin to slow illegal encroachment by agriculture and settlements (ParksWatch, 2003). The huge but underfunded Biosphere Reserve which surrounds it is, especially in the west, widely subject to fire, invasion, poaching and large little planned developments (WCS, 2005).

STAFF

There is a total staff of 135. 79 are engaged in administration, technical work, education and research. There are 56 armed guards, 39 always being in the field with many temporary guards in season but more are needed to protect the boundaries. There is also a 75-man government-funded Tourist Police Force (ParksWatch, 2003).

BUDGET

Initial funding was US\$ 185,000 from the government of Guatemala and US\$500,000 in 1979 from the Central American Bank for Economic Integration to finance an archaeology program. By now, visitor entry and concessionary fees fund both the Park and some sectors of central government. They were estimated to bring in at least US\$600,000 in 2002 (ParksWatch, 2003). Funding for the activities detailed in Scientific Research above has been received from UNESCO, the Peregrine Fund, AID-TNC and UNESCO for Tikal and from WWF, CI, CATIE and WCI for neighbouring areas (Lehnhoff, 1990).

LOCAL ADDRESS

Consejo Nacional de Areas Protegidas, Santa Elena Petén, Guatemala.

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The principal source for the above information was the original State Party nomination

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